Quoc-Viet Pham

Personal Data

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Education

Aug. 2017 Doctor of Telecommunications, **Inje University**, Korea

Aug. 2015 Master of Telecommunications, **Inje University**, Korea

Aug. 2013 Bachelor of Telecommunications, **Hanoi University of Science and Technology**, Vietnam

Academic Experience

Jan. 2020 - Current Research Professor, Korean Southeast Center for the 4th Industrial Revolution Leader Education, Pusan National University, Korea

Mar. 2018 - Dec 2019 Research Professor,
ICT Convergence Center, Changwon National University/Inje University, Korea

Sep. 2017 - Feb. 2018 Post-Doctoral Research Fellow,
Dept. Computer Science and Engineering, Kyung Hee University, Korea

Sep. 2013 - Jun. 2017 Research Assistant, Wireless Networks (WINE) laboratory,
Dept. Information and Communication System, Inje University, Korea

Feb. 2012 - Aug. 2013 Research Assistant, School of Electronics and Telecommunications,
Hanoi University of Science and Technology, Vietnam

Grants and Projects

2019 - 2024 **Korea NRF Basic Science and Research** (500,000,000 KRW), Principal Investigator
Title: *Privacy Enhancing Connected Cars in 5G and Beyond*

2022 - 2024 **FDCRGP Grant, Nazarbayev University** ($136,000, 3 years), Co-Principal Investigator
Title: *Edge-assisted Activity Recognition using Skeletal Representation and DL for Video Surveillance*

2019 - 2024 **Korea NRF Basic Science and Research** (500,000,000 KRW), Key Participant
Title: *Edge Computing in the 5G Ecosystem: Joint 4C Framework and Its Applications*

2018 - 2019 **Korea NRF Basic Science and Research** (25,000,000 KRW), Key Participant
Title: *Low Overhead Channel Access for 5G Mobile Communications in Large-Scale IoT Networks*

2020 - 2027 **Brain Korea (BK) 21** (549,825,000 KRW/year), Participant
Korean Southeast Center for the 4th Industrial Revolution Leader Education,

Fellowships & Awards

- Best paper award, KMMS 2014, JKCCS 2016, KJCCS 2020, KICS 2021.
- Best PhD dissertation, Inje University, Spring 2017.
- Top reviewer award, IEEE Transactions on Vehicular Technology, 2020.
- Award for outstanding contributions and research excellence, Minister of Education (Korea), 2021.
- Golden globe award 2021 for young Vietnamese scientists, Ministry of Science and Technology, 2021.

Teaching Experience

Adjunct Lecturer, Inje University

1. Network Optimization in Wireless and Communication Networks
2. Game Theory in Wireless and Communication Networks
3. Machine Learning in Wireless and Communication Networks

Teaching Assistant, Inje University

1. Introduction to Android Programming, Fall semester 2016.
2. Data and Computer Communications, 2016-2017 (3 semesters).

Supervision

Doctoral Students

- Le Thi Mai [PNU, 2021-Present] - Wireless AI and aerial access networks.
- Nguyen Minh Duong [PNU, 2020-Present] - Deep federated learning for 6G optimization
- Swe Swe Latt [PNU, 2020-Present] - Federated learning and 6G resource optimization
- Dao Thien Thanh [PNU, 2020-Present] - Deep learning and depth map
- Nadia Iradukunda [Inje University, 2019-Present] - UAV communications in 5G and beyond

Master Students

- Daeil Noh [PNU, 2020-Present] - Deep learning for amateur UAV recognition
- Sang Min Lee [PNU, 2020-Present] - Communication-efficient federated learning

Alumnus

- Le Thi Mai [MS, Inje University, 2019-2021] - Swarm intelligence for D2D communications
- Vo Ta Hoang [PhD, Inje University, 2017-2020] - Resource allocation for MEC systems
- Hoang Huu Trung [PhD, Inje University, 2018-2021] - ML for mmWave communications
- Nguyen Tien Hoang [MS, Inje University, 2017-2019] - Coalitional games for NOMA-MEC
- Maurice Nduwayezu [MS, Inje University, 2017-2019] - DRL for NOMA-MEC offloading
- Girmay Gebremariam [MS, Inje University, 2017-2019] - Swarm intelligence for D2D communications
- Akmal Azizan [MS, Inje University, 2017-2019] - Blockchain for healthcare applications

Professional Activities

Editors

- Scientific Reports [Nature, Q1, IF 4.379, 2022-Present]
- Journal of Network and Computer Applications [Elsevier, Q1, IF 6.281, 2020-Present]
- IEEE Internet of Things Journal [Lead Editor, Aerial Computing for IoT, 2021-2022]
- Frontiers in Communications and Networks [Associate Editor, 2020-Present]
- Sensors [Guest Editor, Security and Privacy in the Internet of Things (IoT), 2021-2022]

Invited Referee for Journals

- **Letters**: IEEE COMML, IEEE WCL, IEEE L-NET.
- **Transactions**: IEEE TCOM, IEEE TWC, IEEE TVT, IEEE TMC, IEEE TCC, IEEE TSP, IEEE TSC, IEEE TPDS, IEEE TCSS, IEEE JSAC, IEEE TGCN, IEEE TSIPN, IEEE IoTJ.
- **Magazines**: IEEE CommMag, IEEE WCM, IEEE CSM, IEEE VTM, IEEE CIM, IEEE CEMag.

TPC/TPC Chair/Track Chair

- **2022**: IEEE ICC, IEEE VTC, EAI GameNets 2022, ICIT 2022, IEEE ATC 2022.
- **2021**: IEEE VTC2021-Fall, IEEE ISC2, EAI Qshine, FICTA, IEEE GLOBECOM, SoICT.
- **2020**: ICCIS, IEEE WCNC, IEEE ICC, IEEE VTC2020-Spring, IEEE STP-CPS-SECON.

Fields of Research Interest

- **Edge Computing**: resource optimization, aerial computing, edge of things, and edge AI.
- **Future Networks**: 6G, Internet of Things, intelligent surfaces, and blockchain.
- **Wireless AI**: communication-efficient federated learning, sustainable AI, and secure learning.
- **AI for Future Networks**: deep learning, deep reinforcement learning, and federated learning.

Selected Publications

Books

[1] C. de Alwis, **Q.-V. Pham**, and M. Liyanage, *6G Frontiers: New Technologies, Applications, and Standardization Approaches*, Wiley-IEEE Press, expected Oct. 2022.

Book Chapters

[1] **Q.-V. Pham**, *et al.*, "The Emergence of Aerial Computing: Applications and Challenges," in *6G Wireless: The Communication Paradigm Beyond 2030*, CRC Press, 2022.

[2] M. Zeng, **Q.-V. Pham**, *et al.*, "IRS-Empowered Wireless Communications: State-of-the-Art, Key Techniques, and Open Issues," in *6G Wireless: The Communication Paradigm Beyond 2030*, CRC Press, 2022.

[3] Z. Yang, **Q.-V. Pham**, *et al.*, "Federated Learning for Unmanned Aerial Vehicle Communication Networks," in *Secure and Digitalized Future Mobility: Shaping the Ground and Air Vehicles Cooperation*, CRC Press, 2022.

[4] **Q.-V. Pham**, *et al.*, "Artificial intelligence and big data for COVID-19 and social distancing," in *Enabling Technologies for Social Distancing: Fundamentals, concepts and solutions*, IET, 2022.

[5] D. C. Nguyen, **Q.-V. Pham**, *et al.*, "Security and privacy and blockchain applications in COVID-19 detection and social distancing," in *Enabling Technologies for Social Distancing: Fundamentals, concepts and solutions*, IET, 2022.

[6] N.-N. Dao, **Q.-V. Pham**, *et al.*, "Vulnerabilities in fog/edge computing from architectural perspectives," in *Fog/Edge Computing for Security, Privacy, and Applications*, Springer, 2021.

Journal Articles

[1] T. Huynh-The, **Q.-V. Pham**, *et al.*, "RanNet: Learning Residual-Attention Structure in CNNs for Automatic Modulation Classification," *IEEE Wireless Communications Letters*, in press.

[2] **Q.-V. Pham**, *et al.*, "Aerial Computing: A New Computing Paradigm, Applications, and Challenges," *IEEE Internet of Things Journal*, in press.

[3] T. Huynh-The, **Q.-V. Pham**, *et al.*, "MIMO-OFDM Modulation Classification Using Three-Dimensional Convolutional Network," *IEEE Transactions on Vehicular Technology*, in press.

[4] **Q.-V. Pham**, *et al.*, "Energy-Efficient Federated Learning over UAV-enabled Wireless Powered Communications," *IEEE Transactions on Vehicular Technology*, in press.

[5] **Q.-V. Pham**, *et al.*, "Aerial Access Networks for Federated Learning: Applications and Challenges," *IEEE Network*, in press.

[6] M. Le, **Q.-V. Pham**, *et al.*, "Enhanced Resource Allocation in D2D Communications with NOMA and Unlicensed Spectrum," *IEEE Systems Journal*, in press.

[7] M. Alazab, **Q.-V. Pham**, *et al.*, "Federated Learning for Cybersecurity: Concepts, Challenges, and Future Directions," *IEEE Transactions on Industrial Informatics*, vol. 18, no. 5, pp. 3501-3509, 2022.

[8] H. Yang, **Q.-V. Pham**, *et al.*, "Aiding a Disaster Spot via Multi-UAV-based IoT Networks: Energy and Mission Completion Time-Aware Trajectory Optimization," *IEEE Internet of Things Journal*, vol. 9, no. 8, pp. 5853-5867, 2022.

[9] R. Ruby, **Q.-V. Pham**, *et al.*, "Enhancing Secrecy Performance of Cooperative NOMA-Based IoT Networks via Multiantenna-Aided Artificial Noise," *IEEE Internet of Things Journal*, vol. 9, no. 7, pp. 5108-5127, 2022.

[10] T. R. Gadekallu, **Q.-V. Pham**, *et al.*, "Blockchain for Edge of Things: Applications, Opportunities, and Challenges," *IEEE Internet of Things Journal*, vol. 9, no. 2, pp. 964-988, 2022.

[11] Q. V. Do, **Q.-V. Pham**, *et al.*, "Deep reinforcement learning for energy-efficient federated learning in UAV wireless powered networks," *IEEE Communications Letters*, vol. 26, no. 1, pp. 99-103, 2022.

[12] L. Nkenyereye, **Q.-V. Pham**, *et al.*, "Efficient RSU Selection Scheme for Fog-Based Vehicular Software-Defined Network," *IEEE Transactions on Vehicular Technology*, vol. 70, no. 11, pp. 12126-12141, 2021.

[13] H. Han, **Q.-V. Pham**, *et al.*, "Intelligent Reconfigurable Surface Aided Power Control for Physical-Layer Broadcasting," *IEEE Transactions on Communications*, vol. 69, no. 11, pp. 7821-7836, 2021.

[14] T. Huynh-The, **Q.-V. Pham**, *et al.*, "Accurate Deep CNN-based Waveform Recognition for Intelligent Radar Systems," *IEEE Communications Letters*, vol. 25, no. 9, pp. 2938-2942, 2021.

[15] D. C. Nguyen, **Q.-V. Pham**, *et al.*, "Federated Learning Meets Blockchain in Edge Computing: Opportunities and Challenges," *IEEE Internet of Things Journal*, vol. 8, no. 16, pp. 12806-12825, 2021.

[16] T. Huynh-The, **Q.-V. Pham**, *et al.*, "Accurate LPI radar waveform recognition with CWD-TFA for deep convolutional network," *IEEE Wireless Communications Letters*, vol. 10, no. 8, pp. 1638-1642, 2021.

[17] L. Nkenyereye, **Q.-V. Pham**, *et al.*, "Virtual IoT service slice functions for multi-access edge computing platform," *IEEE Internet of Things Journal*, vol. 8, no. 14, pp. 11233-11248, 2021.

[18] **Q.-V. Pham**, *et al.*, "Joint Placement, Power Control, and Spectrum Allocation for UAV Wireless Backhaul Networks," *IEEE Networking Letters*, vol. 3, no. 2, pp. 56-60, 2021.

[19] L. Nkenyereye, **Q.-V. Pham**, *et al.*, "MEIX: Evolving multi-access edge computing for industrial internet-of-things services," *IEEE Network*, vol. 35, no. 3, pp. 147-153, 2021.

[20] N.-N. Dao, **Q.-V. Pham**, *et al.*, "Survey on aerial radio access networks: Toward a comprehensive 6G access infrastructure," *IEEE COMST*, vol. 23, no. 2, pp. 1193-1225, 2021.

[21] **Q.-V. Pham**, *et al.*, "Joint Placement, Power Control, and Spectrum Allocation for UAV Wireless Backhaul Networks," *IEEE Networking Letters*, vol. 3, no. 2, pp. 56-60, 2021.

[22] **Q.-V. Pham**, *et al.*, "UAV communications for sustainable federated learning," *IEEE Transactions on Vehicular Technology*, vol. 70, no. 4, pp. 3944-3948, 2021.

[23] F. Fang, **Q.-V. Pham**, *et al.*, "Energy-efficient design of IRS-NOMA networks," *IEEE Transactions on Vehicular Technology*, vol. 69, no. 11, pp. 14088-14092, 2020.

[24] **Q.-V. Pham**, *et al.*, "Sum-rate maximization for UAV-assisted VLC using NOMA: Swarm intelligence meets machine learning," *IEEE Internet of Things Journal*, vol. 7, no. 10, pp. 10375-10387, 2020.

[25] R. Vinayakumar, **Q.-V. Pham**, "A Visualized Botnet Detection System based Deep Learning for the Internet of Things Networks of Smart Cities," *IEEE Transactions on Industry Applications*, vol. 56, no. 4, pp. 4436-4456, 2020.

[26] **Q.-V. Pham**, *et al.*, "A survey of multi-access edge computing in 5G and beyond: Fundamentals, technology integration, and state-of-the-art," *IEEE Access*, vol. 8, pp. 116974-117017, 2020.

[27] **Q.-V. Pham**, *et al.*, "Whale optimization algorithm with applications to resource allocation in wireless networks," *IEEE Transactions on Vehicular Technology*, vol. 69, no. 4, pp. 4285-4297, 2020.

[28] **Q.-V. Pham**, *et al.*, "Coalitional games for computation offloading in NOMA-enabled multi-access edge computing," *IEEE Transactions on Vehicular Technology*, vol. 69, no. 2, pp. 1982-1993, 2020.

[29] **Q.-V. Pham**, *et al.*, "Mobile edge computing with wireless backhaul: Joint task offloading and resource allocation," *IEEE Access*, vol. 7, pp. 16444-16459, 2019.

[30] **Q.-V. Pham**, *et al.*, "Decentralized computation offloading and resource allocation for mobile-edge computing: A matching game approach," *IEEE Access*, vol. 6, pp. 75 868–75 885, 2018.

[31] **Q.-V. Pham**, *et al.*, "Fairness-aware spectral and energy efficiency in spectrum-sharing wireless networks," *IEEE Transactions on Vehicular Technology*, vol. 66, no. 11, pp. 10207-10219, 2017.

[32] **Q.-V. Pham**, *et al.*, "Network utility maximization-based congestion control over wireless networks: A survey and potential directives," *IEEE COMST*, vol. 19, no. 2, pp. 1173-1200, 2017.

[33] **Q.-V. Pham**, *et al.*, "Resource allocation for heterogeneous traffic in complex communication networks," *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 63, no. 10, pp. 959-963, 2016.

Conferences

[1] **Q.-V. Pham**, *et al.*, "UAV-enabled Wireless Powered Communication for Energy-Efficient Federated Learning," in *IEEE ICC*, Seoul, Korea, May. 2022.

[2] T. Huynh-The, **Q.-V. Pham**, *et al.*, "RaComNet: High-Performance Deep Network for Waveform Recognition in Coexistence Radar-Communication Systems," in *IEEE ICC*, Seoul, Korea, May. 2022.

[3] T. Huynh-The, **Q.-V. Pham**, *et al.*, "Automatic Modulation Classification with Low-Cost Attention Network for Impaired OFDM Signals," in *IEEE WCNC*, Austin, TX, USA, Apr. 2022.

[4] T. Huynh-The, **Q.-V. Pham**, *et al.*, "Densely-accumulated convolutional network for accurate LPI radar waveform recognition," in *IEEE GLOBECOM*, Madrid, Spain, Dec. 2021.

[5] T. Huynh-The, **Q.-V. Pham**, *et al.*, "Deep Learning-based Automatic Modulation Classification for Wireless OFDM Communications," in *ICTC*, Jeju, Korea, Oct. 2021.

[6] T. Huynh-The, **Q.-V. Pham**, *et al.*, "Deep Learning for Coexistence Radar-Communication Waveform Recognition," in *ICTC*, Jeju, Korea, Oct. 2021.

[7] R. Ruby, **Q.-V. Pham**, *et al.*, "Delay Performance of UAV-Based Buffer-Aided Relay Networks under Bursty Traffic: Mobile or Static?," *IEEE WoWMoM*, Pisa, Italy, Jun. 2021.

[8] T Huynh-The, **Q.-V. Pham**, *et al.*, "An accurate ConvNet-empowered modulation classification for OFDM systems," *KICS*, Gangneung, Korea, Feb.,2021.

[9] H. Xu, **Q.-V. Pham**, *et al.*, "Intelligent reflecting surface aided wireless networks: Harris Hawks optimization for beamforming design," *IEEE ICCC*, Sichuan, China, Dec. 2020.

[10] V.-S. Doan, **Q.-V. Pham**, *et al.*, "Chain-Net: Learning deep model for modulation classification under synthetic channel impairment," in *IEEE GLOBECOM*, Taipei, Taiwan, Dec. 2020.

[11] T. Huynh-The, **Q.-V. Pham**, *et al.*, "Learning constellation map with deep CNN for accurate modulation recognition," in *IEEE GLOBECOM*, Taipei, Taiwan, Dec. 2020.

[12] R. Ruby, **Q.-V. Pham**, *et al.*, "Aiding a disaster spot via an UAV-based mobile AF relay: Joint trajectory and power optimization," in *ACM MobiWac*, Alicante, Spain, Nov. 2020.

[13] T. Huynh-The, **Q.-V. Pham**, *et al.*, "Deep learning for constellation-based modulation classification under multipath fading channels," in *ICTC*, Jeju Island, Korea, Oct. 2020.

[14] I. Budhiraja, **Q.-V. Pham**, *et al.*, "Energy efficient mode selection scheme for wireless powered D2D communications with NOMA underlaying UAV," in *IEEE INFOCOM*, Toronto, Canada, Jul. 2020.

[15] H. Han, **Q.-V. Pham**, *et al.*, "Intelligent reflecting surface aided network: Power control for physical-layer broadcasting," in *IEEE ICC*, Dublin, Ireland, 2020.

Referees

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